

What is claimed is:

1. An isolated DNA molecule selected from the group consisting of: (1) a DNA molecule encoding an hIL-1Ra1 polypeptide comprising the amino acid sequence of amino acid residues from about 37 to about 203 of Figure 2 (SEQ ID NO: ); (2) a DNA molecule encoding an hIL-1Ra1 polypeptide comprising the amino acid sequence of amino acid residues from about 15 to about 193 of Figure 3 (SEQ ID NO: ); (3) a DNA molecule encoding an hIL-1Ra2 polypeptide comprising the amino acid sequence of amino acid residues from about 1 to about 134 of Figure 5 (SEQ ID NO: ); (4) a DNA molecule encoding an hIL-1Ra2 fusion variant polypeptide consisting of a native amino acid sequence of hIL-1Ra2 having amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ) fused at its N-terminus or C-terminus to a heterologous

5 amino acid or amino acid sequence; (5) a DNA molecule encoding an hIL-1Ra2 polypeptide consisting of the amino acid sequence of amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ); (6) a DNA molecule encoding an hIL-1Ra3 polypeptide comprising the amino acid sequence of amino acid residues from about 95 to about 134 of Figure 7 (SEQ ID NO: ); (7) a DNA molecule encoding a mIL-1Ra3 polypeptide comprising the amino acid sequence of amino acid residues from about 95 to about 134 of Figure 9 (SEQ ID NO: ); and (8) the complement of any of the DNA molecules of  
10 (1)-(7).

2. The isolated DNA molecule of Claim 1 selected from the group consisting of: (1) a DNA molecule encoding an hIL-1Ra1 polypeptide comprising the amino acid sequence of amino acid residues from about 16 to about 203 of Figure 2 (SEQ ID NO: ); (2) a DNA molecule encoding an hIL-1Ra1 polypeptide comprising the amino acid sequence of amino acid residues from about 1 to about 193 of Figure 3 (SEQ ID NO: ); (3) a DNA molecule encoding an hIL-1Ra3 polypeptide  
20 comprising the amino acid sequence of amino acid residues from about 34 to about 155 of Figure 7 (SEQ ID NO: ); (4) a DNA molecule encoding a mIL-1Ra3 polypeptide comprising the amino acid sequence of amino acid residues from about 34 to about 155 of Figure 9 (SEQ ID NO: ); and (5) the complement of any of the DNA molecules of (1)-(4).

3. The isolated DNA molecule of Claim 2 selected from the group consisting of: (1) a DNA molecule encoding an hIL-1Ra3 polypeptide comprising the amino acid sequence of amino acid residues from about 1 to about 155 of Figure 7 (SEQ ID NO: ); (2) a DNA molecule encoding a mIL-1Ra3 polypeptide comprising the amino acid sequence of amino acid residues from about 1 to about 155 of Figure 9 (SEQ ID NO: ); and (3) the complement of any of the DNA molecules of  
25 (1)-(2).

4. The isolated DNA molecule of Claim 1 selected from the group consisting of: (1) a DNA molecule which encodes an hIL-1Ra1 polypeptide, and which comprises the nucleic acid sequence of nucleotide positions from about 118 to about 618 in the sense strand of Figure 2 (SEQ ID NO: ); (2) a DNA molecule which encodes an hIL-1Ra1 polypeptide, and which comprises the nucleic acid sequence of nucleotide positions from about 145 to about 681 in the sense strand of Figure 3 (SEQ ID NO: ); (3) a DNA molecule which encodes an hIL-1Ra2 polypeptide, and which comprises the nucleic acid sequence of nucleotide positions from about 96 to about 497 in the sense strand of Figure 5 (SEQ ID NO: ); (4) a DNA

molecule which encodes an hIL-1Ra2 fusion variant polypeptide consisting of a native amino acid sequence of hIL-1Ra2 having amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ) fused at its N-terminus or C-terminus to a heterologous amino acid or amino acid sequence, and which comprises the nucleic acid sequence in the sense strand of Figure 5 (SEQ ID NO: ) that encodes the native amino acid sequence; (5) a DNA molecule which encodes an hIL-1Ra2 5 polypeptide consisting of a native amino acid sequence of hIL-1Ra2 having amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ), and which comprises the nucleic acid sequence in the sense strand of Figure 5 (SEQ ID NO: ) that encodes the native amino acid sequence; (6) a DNA molecule which encodes an hIL-1Ra3 polypeptide, and which comprises the nucleic acid sequence of nucleotide positions from about 283 to about 402 in the sense strand of Figure 7 10 (SEQ ID NO: ); (7) a DNA molecule which encodes a mIL-1Ra3 polypeptide, and which comprises the nucleic acid sequence of nucleotide positions from about 427 to about 546 in the sense strand of Figure 9 (SEQ ID NO: ); and (8) the complement of any of the DNA molecules of (1)-(7).

5. The isolated nucleic acid molecule of Claim 4 selected from the group consisting of: (1) a DNA molecule comprising the nucleic acid sequence of nucleotide positions from about 103 to about 681 in the sense strand of Figure 3 15 (SEQ ID NO: ); (2) a DNA molecule comprising the nucleic acid sequence of nucleotide positions from about 100 to about 465 in the sense strand of Figure 7 (SEQ ID NO: ); (3) a DNA molecule comprising the nucleic acid sequence of nucleotide positions from about 244 to about 609 in the sense strand of Figure 9 (SEQ ID NO: ); and (4) the complement of any of the DNA molecules of (1)-(3).

20 6. The isolated nucleic acid molecule of Claim 4 comprising (a) the complete DNA sequence in the sense strand of Figure 2 (SEQ ID NO: ), Figure 3 (SEQ ID NO: ), Figure 5 (SEQ ID NO: ), Figure 7 (SEQ ID NO: ), or Figure 9 (SEQ ID NO: ), or the complement of (a).

25 7. An isolated nucleic acid molecule encoding an IL-1 $\beta$ p polypeptide, comprising DNA hybridizing to the complement of a nucleic acid sequence selected from the group consisting of: (1) the nucleic acid sequence consisting of nucleotide positions from about 145 to about 180 in the sense strand of Figure 3 (SEQ ID NO: ); (2) the nucleic acid sequence consisting of nucleotide positions from about 238 to about 465 in the sense strand of Figure 7 (SEQ ID NO: ); and (3) the nucleic acid sequence consisting of nucleotide positions from about 424 to about 609 in the sense strand of Figure 9 (SEQ ID NO: ).

30 8. An isolated nucleic acid molecule comprising (a) a DNA molecule encoding a polypeptide selected from the group consisting of: (1) a polypeptide comprising the mature hIL-1Ra1 polypeptide encoded by the cDNA insert in the vector deposited as ATCC Deposit No. (DNA85066-P2534); (2) a polypeptide comprising the mature hIL-1Ra1 polypeptide encoded by the cDNA insert in the vector deposited as ATCC Deposit No. (DNA96786-P2534); (3) a polypeptide 35 consisting of the mature hIL-1Ra2 polypeptide encoded by the cDNA insert in the vector deposited as ATCC Deposit No.

(DNA92929-P2534), which mature hIL-1Ra2 polypeptide is fused at its N-terminus or C-terminus to a heterologous amino acid or amino acid sequence; (4) a polypeptide consisting of the mature hIL-1Ra2 polypeptide encoded by the cDNA insert in the vector deposited as ATCC Deposit No. (DNA92929-P2534); (5) a polypeptide comprising the mature hIL-1Ra3 polypeptide encoded by the cDNA insert in the vector deposited as ATCC Deposit No. (DNA96787-P2534); and (6) a  
5 polypeptide comprising the mature mIL-1Ra3 polypeptide encoded by the cDNA insert in the vector deposited as ATCC Deposit No. (DNA92505-P2534); or (b) the complement of the DNA molecule of (a).

9. An isolated nucleic acid molecule comprising (a) DNA encoding the IL-1 $\beta$ p polypeptide of Claim 19, or (b) the complement of the DNA of (a).

10 10. An isolated nucleic acid molecule comprising (a) DNA encoding the IL-1 $\beta$ p polypeptide of Claim 21, or (b) the complement of the DNA of (a).

11. A vector comprising the nucleic acid of Claim 1.

15 12. The vector of Claim 11 operably linked to control sequences recognized by a host cell transfected with the vector.

13. A host cell comprising the vector of Claim 11.

20 14. The host cell of Claim 13, wherein said cell is a CHO cell.

15. The host cell of Claim 13, wherein said cell is an *E. coli* cell.

16. The host cell of Claim 13, wherein said cell is a yeast cell.

25 17. A process for producing the IL-1 $\beta$ p polypeptide of Claim 19 comprising the steps of: (1) culturing a host cell comprising a vector comprising a nucleic acid sequence that encodes the IL-1 $\beta$ p polypeptide under conditions suitable for expression of said IL-1 $\beta$ p polypeptide; and (2) recovering said IL-1 $\beta$ p polypeptide from the cell culture.

30 18. An isolated IL-1 $\beta$ p polypeptide encoded by the nucleic acid molecule of Claim 1.

19. An isolated IL-1 $\beta$ p polypeptide selected from the group consisting of: (1) an hIL-1Ra1 polypeptide consisting of an amino acid sequence having at least an 80% sequence identity to the sequence of amino acid residues from about 37 to about 63 of Figure 2 (SEQ ID NO: ); (2) an hIL-1Ra1 polypeptide consisting of an amino acid sequence having at least an 80% sequence identity to the sequence of amino acid residues from about 15 to about 53 of Figure 3 (SEQ ID NO: ); (3)

an hIL-1Ra2 polypeptide comprising the amino acid sequence of amino acid residues from about 1 to about 134 of Figure 5 (SEQ ID NO: ); (4) an hIL-1Ra2 polypeptide consisting of the amino acid sequence of amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ); (5) an hIL-1Ra2 fusion variant polypeptide consisting of a native amino acid sequence of hIL-1Ra2 having amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ) fused at its N-terminus or C-terminus to a heterologous amino acid or amino acid sequence; (6) an hIL-1Ra3 polypeptide consisting of an amino acid sequence having at least an 80% sequence identity to the sequence of amino acid residues from about 95 to about 134 of Figure 7 (SEQ ID NO: ); and (7) a mIL-1Ra3 polypeptide consisting of an amino acid sequence having at least an 80% sequence identity to the sequence of amino acid residues from about 95 to about 134 of Figure 9 (SEQ ID NO: ).

10 20. The isolated polypeptide of Claim 19 that is an hIL-1Ra3 polypeptide consisting of an amino acid sequence having at least an 80% sequence identity to the sequence of amino acid residues from about 80 to about 155 of Figure 7 (SEQ ID NO: ).

15 21. The isolated polypeptide of Claim 19 selected from the group consisting of: (1) an hIL-1Ra1 polypeptide comprising amino acid residues from about 37 to about 63 of Figure 2 (SEQ ID NO: ); (2) an hIL-1Ra1 polypeptide comprising amino acid residues from about 15 to about 53 of Figure 3 (SEQ ID NO: ); (3) an hIL-1Ra2 polypeptide comprising amino acid residues from about 1 to about 134 of Figure 5 (SEQ ID NO: ); (4) an hIL-1Ra2 polypeptide consisting of amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ); (5) an hIL-1Ra2 fusion variant polypeptide consisting of a native amino acid sequence of hIL-1Ra2 having amino acid residues from about 27 to about 134 of Figure 5 (SEQ ID NO: ) fused at its N-terminus or C-terminus to a heterologous amino acid or amino acid sequence; (6) an hIL-1Ra3 polypeptide comprising amino acid residues from about 95 to about 134 of Figure 7 (SEQ ID NO: ); and (7) a mIL-1Ra3 polypeptide comprising amino acid residues from about 95 to about 134 of Figure 9 (SEQ ID NO: ).

25 22. The isolated polypeptide of Claim 21 selected from the group consisting of: (1) an hIL-1Ra1 polypeptide comprising amino acid residues from about 37 to about 203 of Figure 2 (SEQ ID NO: ); (2) an hIL-1Ra1 polypeptide comprising amino acid residues from about 15 to about 193 of Figure 3 (SEQ ID NO: ); (3) an hIL-1Ra3 polypeptide comprising amino acid residues from about 34 to about 155 of Figure 7 (SEQ ID NO: ); and (3) a mIL-1Ra3 polypeptide comprising amino acid residues from about 34 to about 155 of Figure 9 (SEQ ID NO: ).

30 23. An isolated IL-1lp polypeptide consisting of an amino acid sequence scoring at least 80% positives when compared to an amino sequence selected from the group consisting of: (1) amino acid residues from about 37 to about 63 of Figure 2 (SEQ ID NO: ); (2) amino acid residues from about 15 to about 53 of Figure 3 (SEQ ID NO: ); (3) amino acid residues from about 95 to about 134 of Figure 7 (SEQ ID NO: ); and (4) amino acid residues from about 95 to about 134 of Figure 9 (SEQ ID NO: ).

24. The isolated polypeptide of Claim 23 that is an hIL-1Ra3 polypeptide consisting of an amino acid sequence scoring at least 80% positives when compared to the sequence of amino acid residues from about 80 to about 155 of Figure 7.
25. An isolated IL-11p polypeptide comprising an amino acid sequence sufficient to provide an anti-IL-11p antibody binding site, which amino acid sequence coincides with any stretch of at least about 10 contiguous amino acids in a sequence selected from the group consisting of: (1) amino acid residues from about 37 to about 63 of Figure 2 (SEQ ID NO: ); (2) amino acid residues from about 15 to about 53 of Figure 3 (SEQ ID NO: ); (3) amino acid residues from about 80 to about 155 of Figure 7 (SEQ ID NO: ); and (4) amino acid residues from about 95 to about 155 of Figure 9 (SEQ ID NO: ).
- 5 26. An isolated IL-11p polypeptide that is the same as the mature polypeptide encoded by the cDNA insert of a vector selected from the group consisting of the vectors deposited as ATCC Deposit Nos. (DNA85066-P2534), (DNA96786-P2534), (DNA92929-P2534), (DNA96787-P2534), and (DNA92505-P2534).
- 10 27. The IL-11p polypeptide of Claim 21 that comprises a native amino acid sequence of the IL-11p fused at its C-terminus or N-terminus to a heterologous amino acid sequence.
- 15 28. The IL-11p polypeptide of Claim 27, wherein said heterologous amino acid sequence is an epitope tag sequence.
- 20 29. The IL-11p polypeptide of Claim 27, wherein said heterologous amino acid sequence is a Fc region of an immunoglobulin.
30. An antibody which specifically binds to the IL-11p polypeptide of claim 19.
31. The antibody of Claim 30, wherein said antibody is a monoclonal antibody.

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